

NASA TECH BRIEF

Lewis Research Center



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

Ultra Thin Gage Plastic Film

The problem:

To devise a means of producing ultra thin 1.56 micron (0.0614 mil) thick polyethylene film. Because conventional equipment is not designed for this application, the process of extruding extremely thin plastic films is time-consuming and laborious, and die blowouts are frequently encountered. Consequently, films of less than 8.4 microns (0.33 mil) are seldom made, particularly in polyethylene, and gage films produced commercially are generally only 8.9 to 10.2 microns (0.35 to 0.40 mils).

The solution:

A new process utilizing specially modified conventional equipment, with changes in process temperature, pressure, and cooling requirements.

How it's done:

An experimental resin and specially modified equipment are used to extrude layflat tubular polyethylene film in gages down to 1.56 microns (0.0614 mil). The ultimate tensile strength of the film is 52 MN/m² (7550 psi), an increase of almost 300% over conventional gage film from this same resin. The results, in general, are films with approximately the same strength in both directions (length and width), with good sealability and other physical properties.

Notes:

1. The following documentation may be obtained from:

National Technical Information Service
Springfield, Virginia 22151
Single copy price \$3.00
(or microfiche \$0.95)

References:

NASA-CR-274 (N65-30186), Ultra Thin Gauge Polymeric Films for Space Applications

NASA-CR-72051 (N67-13782), Development of Ultra Thin Gauge Polymeric Films

2. Technical questions may be directed to:

Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B71-10135

Patent status:

No patent action is contemplated by NASA.

Source: D. W. Cox, Jr., and A. D. Struble of
Sea-Space Systems, Inc.
under contract to
Lewis Research Center
(LEW-11276)

Category 04,08

